

Applicant : Budong You et al.
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Attorney's Docket No.: 09464-028001

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-6. (Withdrawn)

7. (Currently Amended) A voltage regulator having an input terminal and an output terminal, the voltage regulator comprising:

a PMOS transistor connecting the input terminal to an intermediate terminal, the PMOS transistor including a first gate oxide layer;

an LDMOS transistor connecting the intermediate terminal to ground, the LDMOS transistor including a second gate oxide layer;

a controller that drives the PMOS transistor and the LDMOS transistor to alternately couple the intermediate terminal between the input terminal and ground to generate an intermediate voltage at the intermediate terminal having a rectangular waveform; and

a filter disposed between the intermediate terminal and the output terminal to convert the rectangular waveform into a substantially DC voltage at the output terminal,

wherein the PMOS transistor, the LDMOS transistor, and the controller are formed on a same substrate.

8. (Currently Amended) The voltage regulator of claim 7 [[1]], wherein the controller drives the PMOS transistor with a first gate voltage and drives the LDMOS transistor with a second, different, gate voltage.

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9. (Original) The voltage regulator of claim 8, wherein the second gate voltage is compatible with a CMOS logic circuit.
10. (Currently Amended) The voltage regulator of claim 8 [[1]], wherein first gate voltage is larger than the second gate voltage.
11. (Original) The voltage regulator of claim 10, wherein the second gate oxide layer is thicker than the first gate oxide layer.
12. (Currently Amended) The voltage regulator of claim 7 [[1]], wherein the PMOS transistor and the LDMOS transistor have a similar threshold voltage.
13. (Currently Amended) The voltage regulator of claim 7 [[1]], wherein the PMOS transistor, the LDMOS transistor, and the controller are monolithically integrated onto a single chip.
14. (Original) The voltage regulator of claim 13, wherein the controller is fabricated using conventional CMOS transistor.
15. (Currently Amended) The voltage regulator of claim 7 [[1]], wherein the PMOS transistor is a p-type LDMOS transistor.
16. (Currently Amended) The voltage regulator of claim 7 [[1]], further comprising a PMOS driver to drive the PMOS transistor, and an LDMOS driver to drive the LDMOS transistor.

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17. (Original) The voltage regulator of claim 16, wherein the PMOS driver is fabricated using conventional CMOS transistors.

18. (Original) The voltage regulator of claim 16, wherein the LDMOS driver is fabricated using conventional CMOS transistors.

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